



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

PRELIMINARY ISSUE

650.8401

Job Sheet 211498



Part No: 650.8401

Job Qty: 3 pcs

Part Name: Plunger



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 7/17/20

Job Tracking No:

Due Date: 8/7/20

Created By: Jennifer Renwick

Type: SOLD

Description:

Note: 650.8400 REV.PA2 IPP REV:A 20.06.18 NEW ISSUE DD VERF:JFS

Ship Via:

139 Valve

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	SL-154 - 1	3 pcs	8/7/20		1.00	0.75	Doosan - 1		
							NLX 2500SY - 1		DAS
							SL-154 - 1		33 20/07/24
							SL-2500Y - 1		9-89
110	QC 2	3 pcs	8/7/20		0.00	0.00	QC 2 - 1		
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		
							QC 2 - 22		
							QC 2 - 23		
							QC 2 - 25		
							QC 2 - 32		DAS
							QC 2 - 33		33 20/07/24
							QC 2 - 35		9-89
							QC 2 - 39		
							QC 2 - 4		
							QC 2 - 40		
							QC 2 - 44		
							QC 2 - 45		
							QC 2 - 48		
							QC 2 - 49		
							QC 2 - 50		
							QC 2 - 51		
							QC 2 - 52		
							QC 2 - 57		
							QC 2 - 62		
							QC 2 - 63		
							QC 2 - 8		



Container No: S290030



Part: 650.8401

Job No: 211498

Serial No/Batch: S290030

Revision: REV.PA3

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 07/24/20

Plex 7/17/20 2:17 PM Dart.Renwick.Jennifer

7/17/2020

[Dart Hawkesbury] Job Sheet - Renwick, Jennifer

					QC 2 - 66	
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
					QC 2 - 76	
					QC 2 - 86	
					QC 2 - 83	
120	QC 8	3 pcs	8/7/20	0.00 0.00	QC 8 - 12	
					QC 8 - 14	7/20/07/28
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	
					QC 8 - 67	
					QC 8 - 1 (A)	
					QC 8 - 47	
					QC 8 - 40	
					QC 8 - 52	
					QC 8 - 23	
					QC 8 - 57	
					QC 8 - 76	
					QC 8 - 61	
					QC 8 - 66	
					QC 8 - 73	
					QC 8 - 82	
130	Outsource - 15 - Nickel Plate	3 pcs	8/7/20	0.00 0.00	GR0002	2020-07-29
140	Packaging 2-1 - Receive - B4B	3 pcs	8/7/20	0.00 0.00	Packaging 2 - 1 - B4B	
					Packaging 2 - 2 - B4B	
					Packaging 2 - 3 - B4B	
					Packaging 2 - 5 - B4B	18 AUG 06 2020
					Packaging 2 - 4 - B4B	
					Packaging 2 - 6 - B4B	
					Packaging 2 - 7 - B4B	
					Packaging 2 - 8 - B4B	
					Packaging 2 - 9 - B4B	
					Packaging 2 - 10 - B4B	
					Packaging 2 - 11 - B4B	
					Packaging 2 - 12 - B4B	
					Packaging 2 - 13 - B4B	
					Packaging 2 - 14 - B4B	
					Packaging 2 - 15 - B4B	
					Packaging 2 - 16 - B4B	
					Packaging 2 - 17 - B4B	
					Packaging 2 - 18 - B4B	

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					Packaging 2 - 19 - B4B	
					Packaging 2 - 20 - B4B	
					Packaging 2 - 21 - B4B	
					Packaging 2 - 22 - B4B	
					Packaging 2 - 23 - B4B	
					Packaging 2 - 24 - B4B	
					Packaging 2 - 25 - B4B	
					Packaging 2 - 26 - B4B	
					Packaging 2 - 37 - B4B	
150 QC 6	3 pcs	8/7/20	0.00 0.00		QC 6 - 9	
					QC 6 - 68	
					QC 6 - 61	
					QC 6 - 40	
					QC 6 - 81	
					QC 6 - 82	
160 Packaging 3-1 - Stock - B4B	3 pcs	8/7/20	0.00 0.00		Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 37 - B4B	
170 QC 21 - SA	3 pcs	8/7/20	0.00 0.00		QC 21 - SA - 21	
					QC 21 - SA - 70	
					QC 21 - SA - 9	

DAS
82
9-89

SEP 01 2020

DAS
82
9-89

SEP 01 2020

Part Op 100 - ****CRITICAL PART - EXTREME CARE MUST BE TAKEN**** ****MUST ENSURE THE COMPONENTS ARE NEVER DAMAGE**** 1-Machine as per folio FD327 FOLIO REV: AA DWG REV: PA3 2-Debur

110 - QC2- Inspect parts off machine FAI/FAIB

120 - QC8- Inspect parts - second check

130 - Issue P/O; 46808 ELECTROLESS NICKEL PLATED -Material type; STEEL 1215 -Certificate of Conformity is required

140 - Certificate of Conformity is required

150 - QC6- All purchased or subcontracted products

160 - Identify as per dwg & Stock ****CRITICAL PART - EXTREME CARE MUST BE TAKEN**** ****MUST ENSURE THE COMPONENTS ARE NEVER DAMAGE****

170 - QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M1215R0.625	1215 Round Bar, 0.625" Diameter	.4125 (.1375 ea)	100-SL-154 - 1	<u>5286085</u>

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-SL-154 - 1	M1215R0.625	0	0 ✓	0
Part Specifications				
Specifications could not be found.				

Plex 7/17/20 2:17 PM Dart.Renwick.Jennifer

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: [REDACTED] Part No. <u>660.8401</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐		
Date: <u>JULY 17, 20</u>	Sequence #: _____	QTY Affected: <u>3</u>	MRB (QSI042) <u>SP 20/07/17</u> Completed By <u>20/07/28</u> QC / QA Coordinator	
Description Work Order Deviation PART IS MANUFACTURED PER HAND WRITTEN DRAWING TOLERANCES 0.040 IS NOW 0.040 +/- 0.002 0.105 IS NOW 0.105 +/- 0.002 1.525 1.525 IS NOW 1.525 +/- 0.002		Disposition TOLERANCE CHANGES ARE APPROVED		
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☒ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread		
		Other/Details: <u>TOLERANCE RECOMMENDATIONS PER TYPEN CROSS</u> <u>DRAWING WILL BE UPDATED</u>		

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: <u>211498</u> Part No. <u>650.8401</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐					
Date :		Sequence #:		QTY Affected : 2 OF 3 PCS 3			MRB (QSI042) DAS 51 9-89 <i>20/09/07</i>		
Description Work Order Deviation				Disposition				Completed By	
DURING INSPECTION IT WAS FOUND THAT THE DRAWING DIMENSION 11 (0.489-0.490) IS OVER TOLERANCE (I MEASURED 0.4905)				All quantities were buffed to bring the dimension within tolerance. <i>Part are back to tolerance, part are (Acceptable)</i>					
								Lead hand / Supervisor	
								QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☒ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread ☐							
Other/Details:									

2

tolerance.

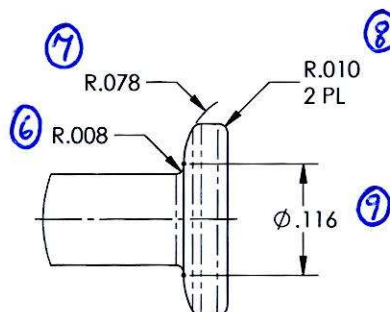
to print the dimension within
the dimension was added

— 3

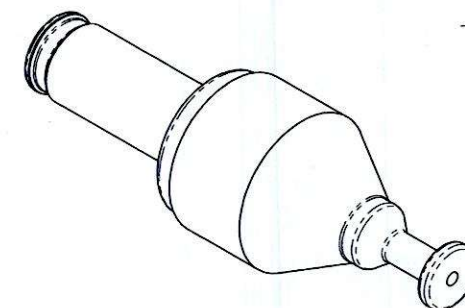
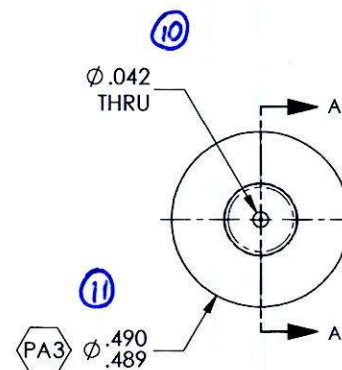
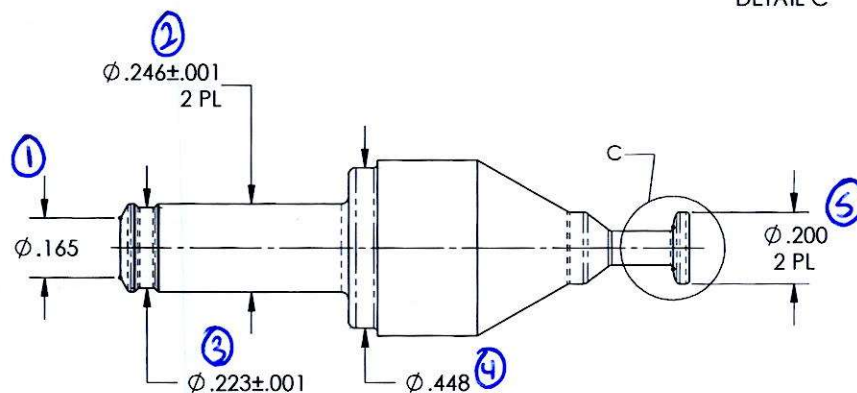
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

NOTES:

1. FINISH: $\sqrt{}$ MAXIMUM UNLESS OTHERWISE SPECIFIED ELECTROLESS NICKEL PLATE IAW ASTM B733 TYPE 4/5 SC 2
2. MATERIAL: AISI 1215 CARBON STEEL IAW AMS 5010 OR ASTM A29/A108/A576
3. DEBURR AND BREAK ALL SHARP EDGES
4. IDENTIFY IAW MPP-120
5. DIMENSIONAL LIMITS APPLY AFTER PLATING



DETAIL C



650.8401

PROTOTYPE REVISIONS

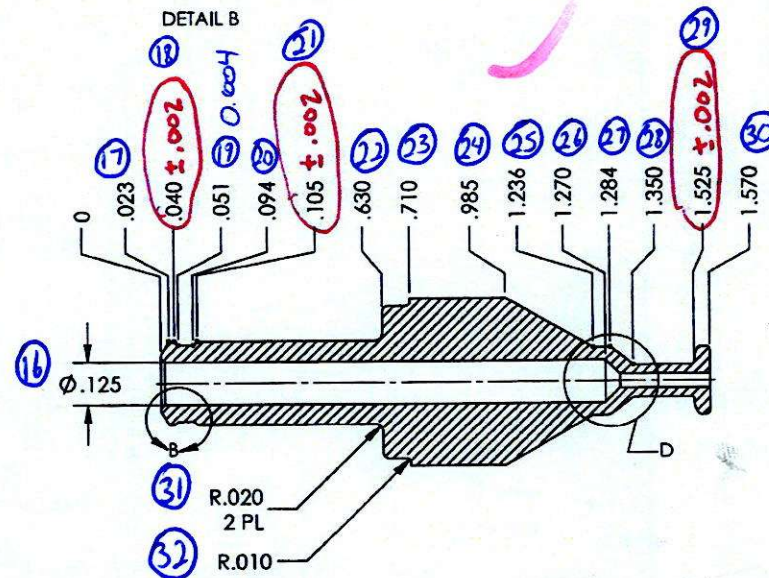
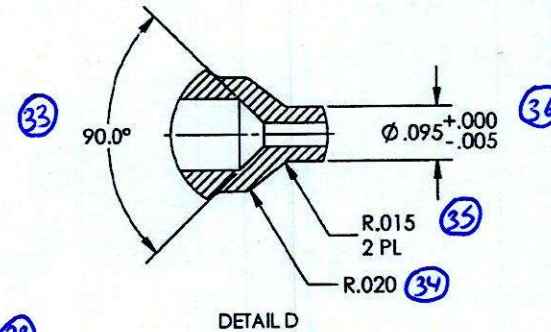
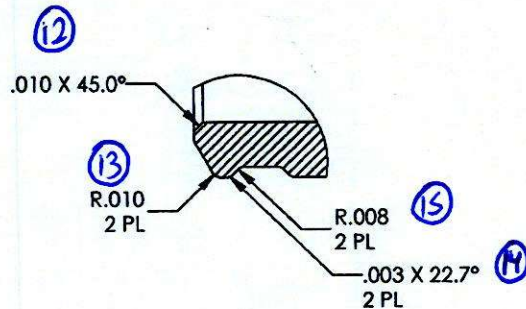
ZONE	REV	DESCRIPTION	DATE	APPROVED
ALL A1-1 C5-1 A5-2	PA1	REMOVED METRIC DIMENSIONS ADDED NOTE 5 DIMENSION WAS $\phi .4900 \pm .0008$ IS $\phi .4884-.4900$ ADDED 90.0° DIMENSION	06/01/2020	T. CROSS
A1-1	PA2	MODIFIED FINISH AND MATERIAL NOTE	06/22/2020	T. CROSS
C5-1 B3-2 B5-2	PA3	DIMENSION WAS $\phi .4884-.4900$ IS $\phi .489-.490$ DIMENSION WAS .040 IS .040 ± .002 DIMENSION WAS .105 IS .105 ± .002 DIMENSION WAS 1.525 IS 1.525 ± .002	07/20/2020	T. CROSS

1	650.8401	PLUNGER		
FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
QTY		PARTS LIST		
NEXT ASSY (S)		APICAL INDUSTRIES		
650.5300		2608 TEMPLE HEIGHTS DR.		
		OCEANSIDE, CA. 92056-3512 (760)724-5300		
		PLUNGER		
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .010 3 PLACE DECIMALS ± .005 ANGLES ± .5°	SIZE B CAGE CODE 07M26 DWG. NO. 650.8400	REV. PA3
		SCALE NONE	SHEET 1 OF 2	

→ EVERY DIM, EVERY PART TO INSPECT

Released on 6/23/2020

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



SECTION A-A

APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
PLUNGER	
ORIGINAL DATE: 10-20-89 DESIGNED BY: J. GARDNER DRAWING APPROVAL: P. BRAVO P. BRAVO CONTRACT NO.:	SHEET: 2 OF 2 REV: PA2 DWG. NO: 650.8400 CAGE CODE: 07M26 SCALE: NONE

DART AEROSPACE LTD		Work Order: 211498
Description: PLUNGER		Part Number: 650,8401
Inspection Dwg: 650,8400 Rev: PA2		Page 1 of 1

INSPECTION SHEET

	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1	0,165	± 0,005	0,165	✓		MJP-04	
2	0,246	± 0,001	0,2453	✓			
3	0,223	± 0,001	0,2226	✓			
4	0,448	± 0,005	0,449	✓			
5	0,200	± 0,005	0,202	✓			
6	R 0,008	± 0,005	0,008	✓			
7	R 0,078	± 0,005	0,078	✓			
8	R 0,010	± 0,005	0,010	✓			
9	0,116	± 0,005	0,116	✓			
10	0,042	± 0,004	0,043	✓			
11	0,4884/0,4900	± —	0,4891	✓			
12	0,010 x 45°	± 0,005 ± 0,5°	0,015 x 45°	✓			
13	R 0,010	± 0,005	0,010	✓			
14	0,003 x 22,7°	± 0,005 ± 0,5°	0,003 x 22,7°	✓			
15	R 0,008	± 0,005	0,008	✓			
16	0,125	± 0,004	0,125	✓			
17	0,023	± 0,005	0,023	✓			
18	0,040	± 0,002	0,040	✓			
19	0,051	± 0,002	0,051	✓			
20	0,094	± 0,005	0,094	✓			
21	0,105	± 0,005	0,105	✓			
22	0,630	± 0,005	0,630	✓			
23	0,710	± 0,005	0,710	✓			
24	0,985	± 0,005	0,985	✓			
25	1,236	± 0,005	1,236	✓			
26	1,270	± 0,005	1,275	✓			
27	1,284	± 0,005	1,284	✓			
28	1,350	± 0,005	1,350	✓			
29	1,525	± 0,002	1,524	✓			
30	1,570	± 0,005	1,569	✓			
31	R 0,020	± 0,005	0,020	✓			
32	R 0,010	± 0,005	0,010	✓			

Measured by: 33 089	Checked by:	QC Inspector:
Date: 20/07/28	Date: 20/07/28	Date:

Engineering Approval: (if necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
B	14.07.31	New Issue	KJ	

*PARTIAL INSPECTION PER DRAWING NOTE 5.

DART AEROSPACE LTD		Work Order: 211498
Description: PLUNGER		Part Number: 650.8401
Inspection Dwg: 650.8400	Rev: PA-3	Page 1 of 1

INSPECTION SHEET

	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2	0.246	±.001	0.2465	✓		MICRO	66160524
3	0.223	±.001	0.2225	✓		VERN	B1962316
10	Ø 0.042	±.005	0.040	✓		GAGE PIN	
11	0.4884/0.4900		0.4895	✓		MICRO	66160524
6	0.125	±.005	0.122	✓		GAGE PIN	
36	Ø.095	±.0005	.093	✓		VERN	B1962316
38	125 C.S ASTM A108		125 C.S ASTM A108	✓		COFC/MIL TEST ATTACHED	
39	NICKEL PLATE		ASTM B733			COFC ATTACHED GROUP ALTECH	

Measured by: [Signature]	Checked by:	QC Inspector:
Date: AUG 28 2020	Date:	Date: SEP 01 2020

Engineering Approval: (If necessary)	Date:
---	-------

Rev	Date	Change	Revised by	Approved
A	14.07.31	New Issue	KJ	

Mitutoyo Surftest SJ-400

DATE 2000-02-17
TIME 21:32:47

STAND JIS2001
PROFILE R
FILTER GAUSS
EVA-L 0.16in
N 5
 λc 0.03in
 λs 100 μ in
TILT-COMP. ALL
CURVE-CMP. OFF
M-SPEED 0.004in/s
R-SPEED 0.04in/s
AUTO-RTN ON
RANGE 32000 μ in
 $\pm$ ESC
DRIVE ON
STYLUS STAND
PRE/POST ON

R-PROFILE

EVA-L 0.16in
 λc 0.03inX5

Ra 18.4 μ in
Rz 128 μ in
Rq 23.1 μ in

R-PROFILE

EVA-L 0.16in
 $\lambda c=0.03inX5$

→x5K
x50

Ver. 200.000 μ in/in
Hor. 0.020in /in





Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB046808



Supplier: GRO002-VC
Group Altech
2455 Halpern
St Laurent
QC
H4S 1N9 Canada
Phone: 514-335-3666
Fax: 514-335-3868

Attention: Grenon, Sylvie

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB046808

PO Date: 7/29/20

Due Date: 8/6/20

Purchase Order

Revision:

Revision Date:

Issued By: Guerin, Kimberley
Phone: 613-632-5200 Ext: 298
kguerin@dartaero.com

Via: Ground

Pymt Terms: Net 60

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Drawing	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	211498	650.8401	650.8400 REV.PA3	Plunger -Issue P/O; ELECTROLESS NICKEL PLATE IAW ASTM B733 TYPE 4/5 SC 2 AS PER DWG -Material type; STEEL 1215 ***EXTREMELY CRITICAL PARTS*** -Certificate of Conformity is required	Firmed x3	-	8/6/20	3 pcs	0 pcs AUG 06 2020	3 pcs	\$13.4375/pcs	\$40.31
	210964				Firmed x3	-	8/6/20	3 pcs	0 pcs AUG 06 2020	3 pcs	\$13.4375/pcs	\$40.31
Sub Total:								6	0	6		\$80.63



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB046808



Items

Line Item	Job	Part	Drawing	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	210518	C10-4-2	C10-4-2 Rev 2A	Lower Lock Roller (Outside Processing - Nickel Plate) -Issue P/O; -All noncertified parts specifying a finish of Nickel Plating per QQ-N-290, or parts with drawings that are missing a specification Can be Nickel Plated per ASTM B733 Type 4/5, SC0-SC4 or MIL-C-26074 Class 1/2 -Material type 4140 -Heat treat must be carried out to specified hardness if noted on the drawing. -Plating thickness must be carried out as specified on the drawing. -Certificate of Conformity is required	Firmed <i>X10</i>	-	8/6/20	10 pcs	0 pcs	10 pcs	\$13.4375/pcs	\$134.38

AUG 6 6 2020

Grand Total: \$215.00

Kimberley



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB046808



Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 8/5/20 4:05 PM Dart.Guerin.Kimberley



Certificat de Conformité / Certificate of Compliance



2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Bon de Livraison / Packing Slip

029930 - 1

Livré à / Ship to

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA

Tel.: 613-632-5200 Fax.:

Client / Customer:

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA

BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Courier / Acc. No.		Bon de commande Client Customer Purchase Order No.			
31-Jul-2020		Ian Wilson			POHB046808			
#Ligne Line#	No. de Série / # Pièce Part Number /Line Item Details Job # / Ref #	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Quantités / Quantities Qté NC/ NC Qty	Qté Scrap/	À venir/ Back Order
1	650.8401 REV.PA3 Rev.	650.8401 REV.PA3 01 -E-NIC STEEL 500 [E-NICKEL STEEL 500] ASTM B733 TYPE 4/5 SC 2 - 0.0005"	E-NICKEL STEEL CH	6	6	0	0	0
2	C10-4-2 REV 2A Rev.	***EXTREMELY CRITICAL PARTS*** C10-4-2 REV 2A 01 -E-NIC STEEL E-NICKEL STEEL QQ-N-290 ASTM B733, TYPE 4/5 0.0004" - 0.0006" BAKE AFTER	E-NICKEL STEEL CH	10	10	0	0	0

DAS
82
9-89

RECEIVED
AUG 05 2020
DART AEROSPACE LTD.

DAS
82
9-89

RECEIVED

AUG 05 2020

DART AEROSPACE LTD.

Notes Additionnelles / Additional Notes

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.

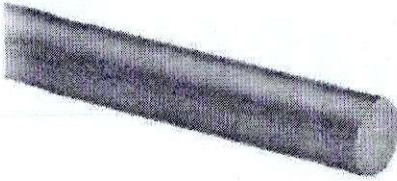
McMASTER-CARR®

5286085

Tight-Tolerance 1215 Carbon Steel Rod

Easy-to-Machine, 5/8" Diameter

\$29.41 Each
6102N3



Material	1215 Carbon Steel
Shape	Rod and Disc
Shape Type	Rods
Diameter	5/8"
Diameter Tolerance	-0.001" to 0"
Tolerance Rating	Tight, Undersized
Yield Strength	Not Rated
Fabrication	Cold Worked
Hardness	Not Rated
Hardness Rating	Medium
Maximum Hardness After Heat Treatment	Not Rated
Heat Treatable	Yes
Certificate	Material Certificate with Traceable Lot Number
Mechanical Finish	Precision Ground
Appearance	Plain
Temperature Range	Not Rated
Specifications Met	ASTM A108
Straightness Tolerance	0.003" per ft.
Elongation	Not Rated
Material Composition	
Carbon	0.08%
Manganese	0.75-1.05%
Phosphorus	0.04-0.09%
Sulfur	0.26-0.35%
Iron	Remainder
Warning Message	Physical and mechanical properties are not guaranteed. They are intended only as a basis for comparison and not for design purposes.
Length Tolerance	Plus
Length	3 ft.
RoHS	RoHS 3 (2015/863/EU) Compliant
REACH	REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant
Country of Origin	United States

Precision ground and held to a strict tightness tolerance, these rods are ready for turning in a lathe. A lead-free alternative to 12L14, 1215 carbon steel contains the same amount of sulfur and phosphorus for excellent machinability. It is often used for shaft couplings, studs, and pins.

L1W5 3

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 6102N3

PO / BATCH NO.: P0413046663

DATE: JUL 06 2020

5286085

MATERIAL CERT REC'D: YES

THICKNESS ORDERED: Ø .625

QUANTITY RECEIVED: 3 FT

THICKNESS RECEIVED: Ø .626

QUANTITY INSPECTED: 3 FT

SHEET SIZE ORDERED: —

QUANTITY REJECTED: —

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	ASTM A108
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	6102N3 McMASTER/CARL
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: _____	68-6 78 DAS	SIGNED OFF BY: _____	
DATE: <u>JUL 06 2020</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



Packing List

200 Aurora Industrial Pkwy
Aurora, OH 44202-8087
330-995-5500
cle.sales@mcmaster.com

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury ON K6A 1K7
Canada

Purchase Order
POHB046663
Order Placed By
Kim

McMaster-Carr Number
7440461-02

Page 1 of 2

06/30/2020

Line	Product	Ordered	Shipped
2	6102N3 Tight-Tolerance 1215 Carbon Steel Rod, Easy-to-Machine, 5/8" Diameter, 3 Feet Long	1 Each	1

RECEIVED

Shipped separately from our Cleveland warehouse on 06/30

JUL 03 2020

4	7767T61 Low-Carbon Steel Round Tube, 0.188" Wall Thickness, 3/4" OD, 6 Feet Long	1 Each	1
5	89955K998 Easy-to-Weld 4130 Alloy Steel Round Tube, 0.188" Wall Thickness, 5/8" OD, 3 Feet Long	5 Each	5
1	20625A914 Mitutoyo Model 101039 Flat Back for Plunger-Style Variance Indicator	1 Each	1
3	1173N124 High-Temperature Soft Silicone O-Ring, 3/32 Fractional Width, Dash Number 124	1 Pack	1
6	92778A067 18-8 Stainless Steel Oval-Tip Set Screws, 6-32 Thread, 1/8" Long	1 Pack	1
7	93705A195 18-8 Stainless Steel Thread-Locking Socket Head Screw, 6-32 Thread Size, 5/8" Long	1 Pack	1
8	9559K41 Ultra-Chemical-Resistant Rigid PTFE O-Ring, 1/8 Fractional Width, Dash Number 219	1 Pack	1
10	90145A510 18-8 Stainless Steel Dowel Pin, 3/16" Diameter, 1" Long	1 Pack	1
11	98410A110 External Retaining Ring for 3/16" OD, Beryllium Copper	1 Pack	1
12	95606A180 Nylon Plastic Washer for 1/2" Screw Size, 0.562" ID, 0.75" OD, Off-White	1 Pack	1
13	7216K5 Hinged Straight-Blade Housing, Hinged, 3-Blade Plug, Grounded, NEMA 5-15, Yellow	30 Each	30
14	7216K6 Hinged Straight-Blade Housing, 3-Slot Socket, NEMA 5-15, Yellow	30 Each	30

Tube
1 - Puro # CPK 007896295



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB046663



Supplier: MCM001-VU
McMaster-Carr Supply Co.
P.O. Box 7690
Chicago, IL 60680-7690 USA
Phone: 330 995 5500
Fax: 330 995 9600

Attention: N/A,

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB046663

PO Date: 6/30/20

Due Date: 7/3/20

**Purchase Order
Revision:**

Revision Date:

Issued By: Guerin, Kimberley
Phone: 613-632-5200 Ext: 298
kguerin@dartaero.com

Via: Ground

Pymt Terms: Net 60

Freight Terms:

Special Comments:

Items													
Line Item	Job	Part	Drawing	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	210829	1173N124		10/pk	O-Ring	Firmed X10	-	7/3/20	10 Ea	0 Ea JUL 03 2020	10 Ea	\$1.375/Ea	\$13.75
2		20625A914		1/pk	Dial Indicator Atchmnt Agd- 2 Dial	Firmed X1	-	7/3/20	1 lbs	0 lbs JUL 03 2020	1 lbs	\$6.63/lbs	\$6.63
		6102N3		3 ft length	Tight- Tolerance 1215 Carbon Steel Rod, Easy-to- Machine, 5/8" Diameter	Firmed X3	-	7/3/20	3 ft	0 ft JUL 07 2020	3 ft	\$9.8033/ft	\$29.41
4		7767T61		6 ft	Low-Carbon Steel Round Tube, 0.188" Wall Thickness, 3/4" OD	Firmed X6	-	7/3/20	6 ft	0 ft JUL 02 2020	6 ft	\$8.51/ft	\$51.06
5		89955K998		3 ft length	Tube	Firmed X15	-	7/3/20	15 ft	0 ft JUL 02 2020	15 ft	\$14.8133/ft	\$222.20
6	210811	92778A067		25/pk	18-8 Stainless Steel Oval-Tip Set Screws, 6- 32 Thread, 1/8" Long	Firmed X25	-	7/3/20	25 Ea	0 Ea JUL 03 2020	25 Ea	\$0.1248/Ea	\$3.12
7		9559K41		10/pk	O-Ring	Firmed X10	-	7/3/20	10 Ea	0 Ea JUL 03 2020	10 Ea	\$1.268/Ea	\$12.68
8	210889	9642K31		25/pk	Trigger Ball	Firmed	-	7/3/20	25 Ea	0 Ea	25 Ea	\$0.3884/Ea	\$9.71
9		C45-11-2	C45	90145A510 20/pk	Locating Pin	Firmed X20	-	7/3/20	20 Ea	0 Ea JUL 03 2020	20 Ea	\$0.423/Ea	\$8.46

Plex 6/30/20 1:03 PM Dart.Guerin.Kimberley